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Logistics Systems Technology

Binder: PROGRAM ELEMENT DESCRIPTIVE SUMMARY - FY1998
Service: AIR FORCE
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Program Element: 0603106F
Budget Activity: 3 - Advanced Technology Development
Program Element Title: Logistics Systems Technology

COST ($In Thousands)

| Project Number and Name | FY1996 Actual | FY1997 Est | FY1998 Est | FY1999 Est | FY2000 Est | FY2001 Est | FY2002 Est | FY2003 Est | Cost Comp | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 16372 | 17467 | 15338 | 17775 | 20535 | 21342 | 21729 | 22420 | Cont | Cont |
| 2745 Logistics for Contingency Operations and Weapon Systems Support | 4858 | 5703 | 4450 | 5948 | 6869 | 7140 | 7269 | 7501 | Cont | Cont |
| 2940 Technology for Design and Maintenance | 5310 | 5848 | 4970 | 5935 | 6855 | 7125 | 7254 | 7484 | Cont | Cont |
| 2950 Improved Logistics and Maintenance Performance | 6204 | 5916 | 5918 | 5892 | 6811 | 7077 | 7206 | 7435 | Cont | Cont |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. Mission Description and Budget Item Justification: This Advanced Technology Development program develops and demonstrates cost-effective technologies to improve the design, acquisition, and supportability of current and future weapon systems. This program directly supports two of the six Air Force Core Competencies, Rapid Global Mobility and Agile Combat Support. It will also incorporate maintenance and support considerations into the weapon systems design process and will make engineering, product support, and maintenance data electronically available throughout weapon systems' life cycles. It will: provide more realistic logistics planning and combat capability assessment tools; provide critical risk reduction technology; and include test and diagnostics technologies, flight line and deployment support, critical aircraft battle/accident damage assessment and repair technology, military aircraft fire suppression agents, and other logistics technologies.

(U) B. Program Change Summary ($in Thousands):

| | FY 1996 | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|---|
| (U) Previous President's Budget | 17,252 | 18,254 | 18,279 | 20,629 | Cont |
| (U) Appropriated Value | 17,960 | 18,254 | | | |
| (U) Adjustments to Appropriated Value | | | | | |
| a. Congressional/General Reductions | -348 | -383 | | | |

b. SBIR
-360 -404
c. Omnibus/Other Above Threshold Reprogrammings
-198
d. Below Threshold Reprogrammings
-682
(U) Current Budget Submit/FY 1998 PB
16,372 17,467 15,338 17,775 Cont

(U) Change Summary Explanation:
Funding: Changes to this PE since the previous President's Budget are due to budget constraints and priorities within the Science and Technology (S&T) Program.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary: Not Applicable.

(U) D. Schedule Profile: Not Applicable.

| COST ($In Thousands) Project Number and Name | FY1996 Actual | FY1997 Est | FY1998 Est | FY1999 Est | FY2000 Est | FY2001 Est | FY2002 Est | FY2003 Est | Cost Comp | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 2745 Logistics for Contingency Operations and Weapon Systems Support | 4858 | 5703 | 4450 | 5948 | 6869 | 7140 | 7269 | 7501 | Cont | Cont |

(U) A. Mission Description and Budget Item Justification: This project develops, demonstrates, and transitions technology to improve the performance and supportability of Air Force weapon systems in peacetime and deployed wartime environments. This project will develop and demonstrate the technologies needed for more reliable aircraft support equipment, enhance our capability to rapidly return battle damaged aircraft to a combat ready status, and support rapid and flexible deployments.

(U) FY 1996 ($in Thousands):

(U) $2,135 Developed and demonstrated fire suppression/extinguishing technologies.
(U) Developed and flight tested gas generator extinguisher technology for aircraft.
(U) Developed inflatable bag fire extinguisher technology for aircraft fire suppression.
(U) $1,993 Developed and demonstrated repair techniques for battle/accident damaged aircraft.
(U) Developed and evaluated technologies for repairing and electrically measuring battle damaged low-observable structures.
(U) Developed technologies for repairing battle damaged composite structures.
(U) Determined technology needs and select concepts for repairing battle damaged turbine engines.
(U) $561 Developed needs assessment and technology for multi-purpose, easily deployable support equipment.
(U) $169 Identified processes, models, technologies, and equipment to enhance contingency operations while decreasing the logistics footprint.
(U) Defined and evaluated configuration options for multi-function

and modular aerospace ground equipment that reduce support costs and deployment footprint.
(U) $4,858 Total

(U) FY 1997 ($in Thousands):

(U) $1,494 Develop and demonstrate fire suppression/extinguishing technologies.
(U) Complete testing on the gas generator technology for aircraft fire suppression systems and make available for transition.
(U) Further develop and flight test the inflatable bag extinguisher technology for aircraft fire suppression.
(U) $1,529 Develop and demonstrate repair techniques for battle damaged/accident damaged aircraft.
(U) Field demonstrate and verify concepts for repairing and measuring battle damaged low-observable structures.
(U) Evaluate technologies for repairing battle damaged composite structures.

(U) $2,680 Develop processes, models, technologies, and equipment to enhance contingency operations while decreasing the logistics footprint.
(U) Design and evaluate technologies for multi-function modular aerospace ground equipment that reduce support costs and deployment footprint.
(U) Design and evaluate technologies for improved supportability and operational efficiency of support equipment and materiel handling equipment.
(U) $5,703 Total

(U) FY 1998 ($in Thousands):

(U) $1,286 Continue to develop repair technologies for battle and accident damaged aircraft.
(U) Field test, document, and transition composite and low-observable structure repair technologies.
(U) Compare and assess available commercial technologies to achieve minimized sound, thermal, and pollution signature and operational residuals.
(U) $3,164 Continue to develop technologies to enhance rapid logistics contingency planning/operations directed towards rapid response, reduce footprint, and improve asset distribution management (place, time, materials, quantities) for logistics support.
(U) Develop advanced deployment/process planning analysis and execution tools; identify essential elements required to support rapid response forces with required initial and sustaining support elements.

(U) Fully define operational requirements for next generation highly reliable, reconfigurable, and easily deployable multi-function, modular support equipment.
(U) Continue technology development to reduce airlift requirements and on-site footprint for multifunction support equipment.
(U) $4,450 Total

(U) FY 1999 ($in Thousands):
(U) $3,311 Continue development of technologies to enhance rapid contingency planning/operations directed towards rapid response, reduced footprint, and 'just- in-time' logistics support.
(U) Field demonstrate advanced deployment planning and execution process planning and analysis tools; identify essential elements required to support rapid response forces with required initial and

sustaining support elements.
(U) Preliminary demonstrations of integrated information/display technologies to improve command/control of asset distribution.
(U) $2,637 Fully define operational requirements for next generation, multi-function, modular support equipment that is highly reliable, reconfigurable, and easily deployable.
(U) Demonstrate technologies that reduce airlift requirements and on-site footprint for multifunction support equipment.

(U) $5,948 Total

(U) B. Program Change Summary ($in Thousands):

| FY 1996 | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | | | | |
| 4,858 | 5,960 | 6,041 | 6,888 | Cont |
| (U) Current Budget Submit/FY 1998 PB | | | | |
| 4,858 | 5,703 | 4,450 | 5,948 | Cont |

(U) Change Summary Explanation:
Funding: Changes to this project since the previous President's Budget are due to budget constraints and priorities within the Science and Technology (S&T) Program.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary:

(U) Related Activities:
(U) PE 0602201F, Aerospace Flight Dynamics.
(U) PE 0602202F, Human Systems Technology.
(U) PE 0603721N, Integrated Diagnostic Support.
(U) PE 0605801A, Pollution Prevention Research and Development.
(U) This project has been coordinated through the Project Reliance process to harmonize efforts and eliminate duplication.
(U) D. Schedule Profile: Not Applicable.

COST ($In Thousands)
Project Number and Name

| FY1996 Actual | FY1997 Est | FY1998 Est | FY1999 Est | FY2000 Est | FY2001 Est | FY2002 Est | FY2003 Est | Cost Comp | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2940 Technology for Design and Maintenance | | | | | | | | | |
| 5310 | 5848 | 4970 | 5935 | 6855 | 7125 | 7254 | 7484 | Cont | Cont |

(U) A. Mission Description and Budget Item Justification: This project develops and demonstrates new technologies to enable design, procurement, repair, and modification of more supportable and affordable weapon systems. These technologies permit integration of design trade off decisions among survivability, producibility, and supportability, including development and use of analyses to assess impacts on system supportability while initiatives are still in the concept design stage.

(U) FY 1996 ($in Thousands):

(U) $1,717 Developed engineering design, analysis methods, and technologies to improve Air Force maintenance and address requirements for improved system reliability/maintainability.

(U)  Developed technology to assess multiple maintenance tasks for improved maintainer interfaces early in the design cycle, including environmental conditions in a simulated work cell.
(U) $2,531 Developed analysis tools to identify needs and improve aircraft repair/support methods and equipment effectiveness.
(U)  Developed variable deployment readiness assessment methods, criteria, and metrics.
(U)  Developed and verified methods to help Air Force logisticians more effectively support the analysis process.
(U) $1,062 Developed and demonstrated engineering design trade off methods to make acquisition/support of Air Force systems more affordable.
(U)  Developed analytic trade off methods to allow designers and users to assess affordability versus performance, support cost, risk, etc., in early development.
(U) $5,310

(U)  FY 1997 ($in Thousands):

(U) $1,806 Develop engineering design, analysis methods, and technologies to improve Air Force maintenance and address requirements for improved reliability/maintainability.
(U)  Create and validate methods for documenting maintenance technician performance requirements for automatic insertion in the Logistics Support Analysis Record.
(U)  Develop criteria/metrics for design engineering assessment of system deployment footprint, supportability, airlift/transportation requirements, and on-site support.
(U) $2,626 Develop and demonstrate analysis methods to identify and meet Air Force logistics needs; improve aircraft repair/support methods.
(U)  Build and demonstrate data collection and decision support technologies for operational logistics requirements.
(U)  Test the flexibility and accuracy of this multi-user technology with commercial analytical methods.
(U)  Define requirements for analytic tool suite to improve the efficiency and affordability of the wing/depot repair process.

(U) $1,416 Completed development/demonstrated engineering design trade off methods and software tools to make acquisition support of Air Force systems more affordable.
(U) $5,848 Total

(U)  FY 1998 ($in Thousands):

(U) $2,634 Continue development of engineering design, analysis methods, and technologies to improve Air Force maintenance and support to improve reliability, maintainability, and deployability.
(U)  Develop and transition advanced computer based maintainability assessment and support data generation using high fidelity human performance models and maintenance task simulations.
(U)  Continue to develop analytic tool suites to improve the efficiency and affordability of the wing/depot repair process.
(U) $2,336 Continue to develop/demonstrate analysis tools to ensure tight correlation between specific operational user requirements and system acquisition, repair, and modification.
(U) Develop and assess technologies to balance operational user requirements with affordability, reliability, and supportability requirements.
(U) Develop, assess, and demonstrate impact of collaborative technologies for distributed , multi- media, multi-user assessments,

trade off, and coordination for consolidation and prioritization of operational logistics requirements.
(U) $4,970 Total

(U) FY 1999 ($in Thousands):

(U) $3,234 Continue development of engineering design, analysis methods, and technologies to improve Air Force maintenance and support to improve reliability, maintainability, and deployability.
(U) Demonstrate analytical tools that facilitate streamlining of aircraft maintenance and repair operations for critical weapon system components.
(U) Demonstrate tools that are better integrate wing/depot logistics operations to increase the efficiency of depot maintenance and repair support to operational wings.
(U) $2,701 Continue to develop/demonstrate analysis tools to ensure tight correlation between specific operational user requirements and system
acquisition, repair, and modification.
(U) Complete the integration and testing of advanced requirements definition, optimization, and traceability techniques to manage and correlate operational weapon system requirements across the Air Force.

(U) $5,935 Total

(U) B. Program Change Summary ($in Thousands):

| FY 1996 | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | | | | |
| 6,186 | 6,111 | 6,159 | 6,836 | Cont |
| (U) Current Budget Submit/FY 1998 PB | | | | |
| 5,310 | 5,848 | 4,970 | 5,935 | Cont |

(U) Change Summary Explanation:
Funding: Changes to this project since the previous President's Budget are due to budget constraints and priorities within the Science and Technology (S&T) Program.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary:

(U) Related Activities:
(U) PE 0602202F, Human Systems Technology.
(U) PE 0604740F, Computer Resource Management Technology.
(U) PE 0708011F, Manufacturing Technology.
(U) This project has been coordinated through the Project Reliance process to harmonize efforts and eliminate duplication.

(U) D. Schedule Profile: Not Applicable.

COST ($In Thousands)

| Project Number and Name | FY1996 Actual | FY1997 Est | FY1998 Est | FY1999 Est | FY2000 Est | FY2001 Est | FY2002 Est | FY2003 Est | Cost Comp | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 2950 Improved Logistics and Maintenance Performance | 6204 | 5916 | 5918 | 5892 | 6811 | 7077 | 7206 | 7435 | Cont | Cont |

(U) A. Mission Description and Budget Item Justification: This project develops and demonstrates technologies that will improve logistics and maintenance support including: development and demonstration of technology essential to field and depot maintenance operations; implementation of near-term logistics technology to shorten the time between user requirement definition and usable product delivery; and development and demonstration of technologies for flightline and Air Logistics Center maintenance technicians.

(U) FY 1996 ($in Thousands):

(U) $3,480 Developed and demonstrated methodologies and technologies to evaluate the benefits of electronic technical data for planning and implementing various types of field and depot maintenance.
(U) Evaluated various software approaches for automatically converting aircraft drawings and technical orders into electronic formats.
(U) Completed requirements analysis for the Aircraft Battle Damage Assessment and Repair (ABDAR) aid demonstration system.
(U) Completed information requirements analysis for integrated technical information for the Air Logistics Centers.
(U) $2,724 Developed and demonstrated technologies for improved logistics planning and deployed maintenance operations.
(U) Demonstrated advanced logistics planning technologies.
(U) Developed software technology tools for wing level logistics planners.
(U) $6,204 Total

(U) FY 1997 ($in Thousands):
(U) $4,460 Develop and demonstrate methodologies and technologies to evaluate the benefits of electronic technical data for planning and implementing various types of field and depot maintenance.
(U) Develop aircraft battle damage assessment aid demonstration system..
(U) Design system to demonstrate integrated technical information for the Air Logistics Centers.
(U) $1,456 Develop and demonstrate technologies for improved logistics planning and deployed maintenance operations.
(U) Complete information analysis required to develop technologies to improve wing level logistics planning environment.

(U) $5,916 Total

(U) FY 1998 ($in Thousands):

(U) $5,281 (U) Continue to develop and demonstrate technologies to evaluate the benefits of electronic technical data for planning and implementing various types of field, depot, and deployed maintenance.

(U) Continue aircraft battle damage assessment aid demonstration system development.
(U) Continue to develop technology for automated generation of technical data from engineering design data base.
(U) $637 (U) Continue to develop and demonstrate technologies for improved logistics planning and deployed maintenance operations.
(U) Complete initial design requirements for fully integrated wing level logistics planning information system.
(U) $5,918 Total

(U) FY 1999 ($in Thousands):

(U) $5,892 (U) Continue to develop and demonstrate technologies to evaluate the benefits of electronic technical data for planning and implementing various types of field, depot, and deployed maintenance.

(U) Field test and demonstrate aircraft battle damage assessment aiding technology.
(U) Continue to develop technology for automated generation of technical data from engineering design data base.

(U) $5,892 Total

(U) B. Program Change Summary ($in Thousands):

| FY 1996 | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | | | | |
| 6,208 | 6,183 | 6,079 | 6,905 | Cont |
| (U) Current Budget Submit/FY 1998 PB | | | | |
| 6,204 | 5,916 | 5,918 | 5,892 | Cont |

(U) Change Summary Explanation:
Funding: Changes to this project since the previous President's Budget are due to budget constraints and priorities within the Science and Technology (S&T) Program.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary:

(U) Related Activities:
(U) PE 0207219F, Advanced Tactical Fighter.
(U) PE 0602202F, Human Systems Technology.
(U) PE 0603721N, Integrated Diagnostic System.
(U) PE 0604708F, Generic Integrated Maintenance Diagnostics Systems.
(U) This project has been coordinated through the Project Reliance process to harmonize efforts and eliminate duplication.

(U) D. Schedule Profile: Not Applicable.